

5 CLAIMS

1. Tree pruning apparatus including:
 - an elongate supporting body locatable along the trunk of a tree to be pruned;
 - a pruning assembly mounted on and drivable along said supporting body
 - 10 and comprising a plurality of pruning jaws movable from an open position and a closed position substantially encircling the trunk;
 - a plurality of blade members mounted on said jaws and having cutting edges forming a substantially circumferential array when said jaws are in their closed position; and
 - 15 actuator means associated with each said blade member and adapted to dynamically maintain the clearance between the trunk and each said cutting edge.
2. Tree pruning apparatus according to Claim 1, wherein said elongate supporting body is mounted on a wheeled or tracked vehicle for locating the body
- 20 adjacent the tree trunk.
3. Tree pruning apparatus according to Claim 1, wherein said vehicle is selected from powered and hand operated vehicles.
- 25 4. Tree pruning apparatus according to any one of Claims 1 to 3, wherein said elongate supporting body mounts said pruning assembly for movement by means selected from a track or moving chain.
5. Tree pruning apparatus according to Claim 4, wherein said pruning
- 30 assembly is urged along the vertical track by means selected from a chain drive, ram or hydraulic, pneumatic or electric motor.
6. Tree pruning apparatus according to any one of Claims 1 to 5, wherein said jaws of the pruning assembly comprise a pair of jaws hinged together.
- 35 7. Tree pruning apparatus according to Claim 6, wherein one said jaw is mounted for movement on said elongate supporting body.

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8. Tree pruning apparatus according to any one of Claims 1 to 5, wherein said jaws are each pivoted from a carrier portion engaging said elongate supporting body.

10 9. Tree pruning apparatus according to any one of the preceding Claims, wherein said jaws are operable by means selected from manual means, hydraulic actuation and pneumatic actuation.

10. Tree pruning apparatus according to any one of the preceding Claims, wherein said actuator means for each of the blade members are operable to maintain a selected clearance under the control of sensor means.

11. Tree pruning apparatus according to Claim 10, wherein said sensor means comprises a mechanical sensor arm associated with the actuator means for each blade member and adapted to move along the trunk ahead of said blade member.

12. Tree pruning apparatus according to Claim 10, wherein said sensor means comprises electronic or optoelectronic distance sensing means associated with the actuator means for each blade member.

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13. Tree pruning apparatus according to any one of the preceding Claims, wherein said actuator means are selected from electric, pneumatic or hydraulic actuators.

30 14. Tree pruning apparatus according to Claim 13, wherein said actuator means are pneumatic actuator assemblies comprising a pneumatic actuator working against a spring.

15. Tree pruning apparatus according to any one of the preceding Claims, wherein said pruning assembly is driven along said elongate body member in use at a linear blade edge velocity of from 1 to 2.5 m/sec.

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5 16. Tree pruning apparatus according to Claim 14, wherein said pneumatic actuator and spring comprise a sensor/actuator assembly, wherein said blade member is urged toward the trunk against the bias of said spring by said pneumatic actuator which is continuously operable in response to a follower interacting with the tree trunk as said sensor.

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17. Tree pruning apparatus according to any one of the preceding Claims, wherein said blade members have arcuate cutting edges.

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18. Tree pruning apparatus according to Claim 17, wherein said cutting edges describe in combination a substantially circular cutting edge in plan.

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19. Tree pruning apparatus according to Claim 17 or Claim 18, wherein said blade members are arrayed in two or more axially displaced planes, whereby said cutting edges may overlap in plan.

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20. Tree pruning apparatus according to any one of the preceding Claims, wherein said blade members have a cutting edge of chisel-edged form with a substantially sheer face toward the trunk in use and a bevel from the cutting edge to the thickness of the blade body.

21. Tree pruning apparatus according to Claim 19, wherein said sheer face is relieved along said cutting edge at a relief angle of up to 6°.

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22. A tree pruning method including the steps of:

locating an elongate supporting body alongside the trunk of a tree to be pruned;

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closing pruning jaws of a pruning assembly mounted on and drivable along said supporting body to substantially encircle the trunk, said jaws mounting a plurality of blade members having cutting edges forming a substantially circumferential array, the blade members being dynamically maintained as to clearance between the trunk and each said cutting edge by actuator means associated with each said blade member; and

5 driving said pruning assembly along said elongate supporting body to prune said tree.

23. Tree pruning apparatus including:

an elongate supporting body locatable alongside the trunk of a tree to be
10 pruned;

a pruning assembly mounted on and drivable along said supporting body and comprising a plurality of pruning jaws movable from an open position and a closed position substantially encircling the trunk; and

a plurality of blade members mounted on said jaws and having cutting
15 edges in circumferentially overlapping relation when said jaws are in their closed position.

24. A tree pruning method including the steps of:

locating an elongate supporting body alongside the trunk of a tree to be
20 pruned;

closing pruning jaws of a pruning assembly mounted on and drivable along said supporting body to substantially encircle the trunk, said jaws mounting a plurality of blade members having cutting edges in circumferentially overlapping relation; and

25 driving said pruning assembly along said elongate supporting body to prune said tree.